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PATENT APPLICATION

ATTORNEY DOCKET NO. 200310234-1

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	**Ludmila Cherkasova**	**Confirmation No.:**	**7672**
Application No.:	**10/619,805**	**Examiner:**	**B. S. Stace**
Filing Date:	**July 15, 2003**	**Group Art Unit:**	**2163**

Title: SYSTEM AND METHOD HAVING IMPROVED EFFICIENCY FOR DISTRIBUTING A FILE AMONG A PLURALITY OF RECIPIENTS

Mail Stop Appeal Brief-Patents
Commissioner For Patents
PO Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF APPEAL BRIEF

Transmitted herewith is the Appeal Brief in this application with respect to the Notice of Appeal filed concurrently herewith.

The fee for filing this Appeal Brief is (37 CFR 1.17(c)) $500.00.

(complete (a) or (b) as applicable)

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

☐ (a) Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)-(d)) for the total number of months checked below:

☐ 1st Month $120	☐ 2nd Month $450	☐ 3rd Month $1020	☐ 4th Month $1590

☐ The extension fee has already been filed in this application.

☒ (b) Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

Please charge to Deposit Account 08-2025 the sum of $ 500 . At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees. A duplicate copy of this sheet is enclosed.

☒ I hereby certify that this correspondence is being deposited with the United States Postal Service as Express Mail, Airbill No. EV 568242587US, addressed to: Commissioner for Patents, Alexandria, VA 22313-1450
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Respectfully submitted,
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Docket No.: 200310234-1
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Ludmila Cherkasova

Application No.: 10/619,805 | Confirmation No.: 7672

Filed: July 15, 2003 | Art Unit: 2163

For: SYSTEM AND METHOD HAVING IMPROVED EFFICIENCY FOR DISTRIBUTING A FILE AMONG A PLURALITY OF RECIPIENTS | Examiner: B. S. Stace

APPEAL BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This brief is filed concurrently with the Notice of Appeal, and is in furtherance of said Notice of Appeal, thus complying with § 41.37(a).

The fees required under § 41.20(b)(2) are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This brief contains items under the following headings as required by 37 C.F.R. § 41.37 and M.P.E.P. § 1206:

I.	Real Party In Interest
II	Related Appeals and Interferences
III.	Status of Claims
IV.	Status of Amendments
V.	Summary of Claimed Subject Matter
VI.	Grounds of Rejection to be Reviewed on Appeal
VII.	Argument
VIII.	Claims Appendix

IX. Evidence Appendix
X. Related Proceedings Appendix

I. REAL PARTY IN INTEREST

The real party in interest for this appeal is:

Hewlett-Packard Development Company, L.P., a Limited Partnership established under the laws of the State of Texas and having a principal place of business at 20555 S.H. 249, Houston, TX 77070, U.S.A. (hereinafter "HPDC"). HPDC is a Texas limited partnership and is a wholly-owned affiliate of Hewlett-Packard Company, a Delaware Corporation, headquartered in Palo Alto, CA. The general or managing partner of HPDC is HPQ Holdings, LLC.

II. RELATED APPEALS, INTERFERENCES, AND JUDICIAL PROCEEDINGS

Appellant respectfully notes that the following copending applications are on appeal before the Board, which contain at least some issues that are similar to issues of the present application, which may be affected or have a bearing on the Board's decision in this appeal: 1) Application No. 10/345,716 (hereinafter "the '716 application"); and 2) Application No. 10/345,718 (hereinafter "the '718 application"). A notice of appeal to the Board was filed for the '716 application on September 11, 2006, and a notice of appeal to the Board was filed for the '718 application on September 11, 2006.

There are no other appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

A. Total Number of Claims in Application

There are 34 claims pending in application.

B. Current Status of Claims

1. Claims canceled: None

2. Claims withdrawn from consideration but not canceled: None

3. Claims pending: 1-34

4. Claims allowed: None

5. Claims rejected: 1-34

C. Claims On Appeal

The claims on appeal are claims 1-34

IV. STATUS OF AMENDMENTS

A Final Office Action rejecting the claims of the present application was mailed June 9, 2006. In response, Applicant did not file an Amendment After Final Rejection, but instead filed a Notice of Appeal, which this brief supports. Accordingly, the claims on appeal are those as rejected in the Final Office Action of June 9, 2006. A complete listing of the claims is provided in the Claims Appendix hereto.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The following provides a concise explanation of the subject matter defined in each of the separately argued claims involved in the appeal, referring to the specification by page and line number and to the drawings by reference characters, as required by 37 C.F.R. § 41.37(c)(1)(v). Each element of the claims is identified by a corresponding reference to the specification and drawings where applicable. It should be noted that the citation to passages in the specification and drawings for each claim element does not imply that the limitations from the specification and drawings should be read into the corresponding claim element.

According to one claimed embodiment, such as that of independent claim 1, a method comprises partitioning a file (e.g., file F of FIG. 1) into a plurality of subfiles (e.g., subfiles F_1-F_k of FIG. 1). The method further comprises distributing (e.g., block 803 of FIG. 8) the plurality of subfiles from a first node (e.g., node N_0 of FIG. 1) to a first group comprising a plurality of recipient nodes (e.g., recipient nodes N_1-N_k of FIG. 1), wherein at least one subfile is distributed from the first node to each recipient node of the first group but no individual recipient node receives all of the plurality of subfiles (e.g., example of FIG. 1, and *see* paragraphs 0008 and 0040). The method further comprises exchanging subfiles among the plurality of recipient nodes of the first group such that each recipient node of the first

group obtains all of the plurality of subfiles (e.g., FIGS. 2-3 and 6, and *see* paragraphs 0008 and 0041-0044), wherein at least one recipient node of the first group begins communicating a portion of its respective subfile that it is receiving from the first node to at least one other recipient node of the first group before the at least one recipient node fully receives its respective subfile (*see* block 804 of FIG. 8 and paragraphs 0008 and 0067).

In certain embodiments, such as that of dependent claim 3, the partitioning comprises partitioning the file into the plurality of subfiles corresponding in number to a number of the recipient nodes in the first group (*see* example of FIG. 1).

In certain embodiments, such as that of dependent claim 4, the partitioning further comprises partitioning the file into the plurality of subfiles that are each approximately equal in size (*see* paragraph 0037).

In certain embodiments, such as that of dependent claim 6, the method further comprises determining a suitable number of concurrent communication connections that can be used for communication of information between one of the nodes and a plurality of the other nodes (e.g., block 901 of FIG. 9A); and determining the number of recipient nodes to include in the first group as corresponding in number to the number of concurrent communication connections (e.g., blocks 902-905 of FIG. 9A).

In certain embodiments, such as that of dependent claim 7, the distributing comprises distributing the plurality of subfiles to the plurality of recipient nodes of the first group concurrently (e.g., example of FIG. 1 and blocks 913-914 of FIG. 9B).

In certain embodiments, such as that of dependent claim 8, exchanging subfiles among the plurality of recipient nodes of the first group further comprises each of the plurality of recipient nodes establishing concurrent communication connections to every other recipient node of the first group (e.g., examples of FIGS. 2-3, and *see* paragraph 0041).

In certain embodiments, such as that of dependent claim 14, each recipient node of the first group begins communicating the subfile that it is receiving from the first node to the at least one node of the second group before fully receiving the subfile from the first node (e.g., example of FIG. 6, and *see* paragraphs 0045-0048).

In certain embodiments, such as that of dependent claim 15, the method further comprises logically organizing a plurality of groups of recipient nodes into a primary multicast tree, wherein the groups of the primary multicast tree are logically organized sequentially such that intermediate groups of the primary multicast tree each communicate the file to a next sequential group of the primary multicast tree and wherein each intermediate group begins to communicate the file to a next sequential group of the primary multicast tree before fully receiving the file from a preceding group of the primary multicast tree (e.g., example of FIG. 6, and *see* paragraphs 0045-0048).

According to another claimed embodiment, such as that of independent claim 17, a system comprises means (e.g., software, hardware and/or or firmware, *see* paragraphs 0088-0089) for partitioning a file (e.g., file F of FIG. 1) into a plurality of subfiles (e.g., subfiles F_1-F_k of FIG. 1). The system further comprises an origin node (e.g., node N_0 of FIG. 1) comprising means (e.g., software, hardware and/or firmware, *see* paragraphs 0088-0089) for distributing all of said plurality of subfiles from said origin node to a first group comprising a plurality of recipient nodes (e.g., recipient nodes N_1-N_k of FIG. 1), wherein at least one subfile is distributed from the origin node to each recipient node of said first group but not all of said plurality of subfiles are distributed from the origin node to any of the recipient nodes of said first group (e.g., example of FIG. 1, and *see* paragraphs 0008 and 0040). The system further comprises said recipient nodes of said first group each comprising means (e.g., software, hardware and/or firmware, *see* paragraphs 0088-0089) for exchanging their respective subfiles received from said origin node such that each recipient node of said first group obtains all of said plurality of subfiles (e.g., FIGS. 2-3 and 6, and *see* paragraphs 0008 and 0041-0044), wherein said means (e.g., software, hardware and/or firmware, *see* paragraphs 0088-0089) for exchanging of at least one recipient node of said first group begins communicating a portion of its respective subfile that it is receiving from the first node to at least one other recipient node of said first group before the at least one recipient node fully receives its respective subfile from the origin node (*see* block 804 of FIG. 8 and paragraphs 0008 and 0067).

In certain embodiments, such as that of dependent claim 19, the means for partitioning comprises means (e.g., software, hardware and/or firmware, *see* paragraphs

0088-0089) for partitioning said file into said plurality of subfiles corresponding in number to a number of said recipient nodes in said first group (*see* example of FIG. 1).

In certain embodiments, such as that of dependent claim 20, the means for distributing comprises means (e.g., software, hardware and/or firmware, *see* paragraphs 0088-0089) for distributing the plurality of subfiles to said plurality of recipient nodes of said first group concurrently (e.g., example of FIG. 1 and blocks 913-914 of FIG. 9B).

In certain embodiments, such as that of dependent claim 22, the means for communicating of each recipient node of said first group begins communicating the subfile that such recipient node is receiving from said origin node to at least one node of the second group before fully receiving the subfile from the origin node (e.g., example of FIG. 6, and *see* paragraphs 0045-0048).

According to another claimed embodiment, such as that of independent claim 23, a system comprises an origin node (e.g., node N_0 of FIG. 1) operable to partition a file (e.g., file F of FIG. 1) into a plurality of subfiles (e.g., subfiles F_1-F_k of FIG. 1), wherein said plurality of subfiles correspond in number to a number of recipient nodes (e.g., recipient nodes N_1-N_k of FIG. 1) in a first group to which said file is to be distributed (*see* example of FIG. 1). The origin node is operable to distribute all of said plurality of subfiles to said recipient nodes, wherein a different subfile is distributed from said origin node to each of said recipient nodes (e.g., example of FIG. 1, and *see* paragraphs 0010 and 0040). The recipient nodes are operable to exchange their respective subfiles received from said origin node such that each recipient node obtains all of said plurality of subfiles (e.g., FIGS. 2-3 and 6, and *see* paragraphs 0010 and 0041-0044), wherein at least one recipient node is operable to begin communicating a portion of its respective subfile that it is receiving from the origin node to at least one other recipient node before the at least one recipient node fully receives its respective subfile from the origin node (*see* block 804 of FIG. 8 and paragraphs 0008 and 0067).

According to another claimed embodiment, such as that of independent claim 25, a method comprises distributing a plurality of subfiles (e.g., subfiles F_1-F_k of FIG. 1) that comprise a file (e.g., file F of FIG. 1) from a first node (e.g., node N_0 of FIG. 1) to a first group comprising a plurality of recipient nodes (e.g., recipient nodes N_1-N_k of FIG. 1),

wherein at least one subfile distributed from the first node to each recipient node of said first group but no individual recipient node of said first group receives all of said plurality of subfiles from the first node (e.g., example of FIG. 1, and *see* paragraphs 0011 and 0040). The method further comprises exchanging subfiles among said plurality of recipient nodes of said first group such that each recipient node of said first group obtains all of said plurality of subfiles (e.g., FIGS. 2-3 and 6, and *see* paragraphs 0011 and 0041-0044), wherein at least one recipient node of said first group begins communicating a portion of its respective subfile that it is receiving from the first node to at least one other recipient node of said first group before the at least one recipient node fully receives its respective subfile (*see* block 804 of FIG. 8 and paragraphs 0008 and 0067).

In certain embodiments, such as that of dependent claim 28, the distributing comprises distributing the plurality of subfiles to said plurality of recipient nodes of said first group concurrently (e.g., example of FIG. 1 and blocks 913-914 of FIG. 9B).

In certain embodiments, such as that of dependent claim 29, exchanging subfiles among said plurality of recipient nodes of said first group further comprises each of said plurality of recipient nodes establishing concurrent communication connections to every other recipient node of said first group (e.g., example of FIGS. 2-3, and *see* paragraphs 0041-0044).

In certain embodiments, such as that of dependent claim 31, each recipient node of said first group begins communicating the subfile that it is receiving from said first node to at least one node of the second group before fully receiving the subfile from the first node (e.g., example of FIG. 6, and *see* paragraphs 0045-0048).

According to another claimed embodiment, such as that of independent claim 32, a method comprises distributing a plurality of descriptors of a file (e.g., file F of FIG. 1) encoded with multiple description coding (MDC) (*see* paragraphs 0012 and 0085-0087) from a first node (e.g., node N_0 of FIG. 1) to a first group comprising a plurality of recipient nodes (e.g., recipient nodes N_1-N_k of FIG. 1), wherein at least one descriptor is distributed from the first node to each recipient node of said first group but not all of said plurality of descriptors are distributed from the first node to any of the recipient nodes of said first group (e.g., example of FIG. 1, and *see* paragraphs 0012 and 0040). The method further comprises said

plurality of recipient nodes of said first group exchanging their respective descriptors such that each recipient node of said first group obtains all of said plurality of descriptors (e.g., FIGS. 2-3 and 6, and *see* paragraphs 0012, 0041-0044, and 0085-0087), wherein at least one recipient node of said first group begins communicating a portion of its respective descriptor that it is receiving from the first node to at least one other recipient node of said first group before the at least one recipient node fully receives its respective descriptor from the first node (*see* block 804 of FIG. 8 and paragraphs 0012 and 0067).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claim 4 is rejected under 35 U.S.C. §112, second paragraph as being indefinite.

Claims 1, 3-17, 19-22, 25, 26, and 28-31 are rejected under 35 U.S.C. §103(a) as being unpatentable over published U.S. Patent Application No. 2004/0088380 to Chung et al. (hereinafter "*Chung*") in view of U.S. Patent No. 6,477,583 to Zayas et al. (hereinafter "*Zayas*").

Claims 2, 18, 23, 24, 27, and 32-34 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Chung* in view of *Zayas* and further in view of U.S. Patent No. 5,928,331 to Bushmitch (hereinafter "*Bushmitch*").

VII. ARGUMENT

Appellant respectfully traverses the outstanding rejections of the pending claims, and requests that the Board reverse the outstanding rejections in light of the remarks contained herein. The claims do not stand or fall together. Instead, Appellant presents separate arguments for various independent and dependent claims. Each of these arguments is separately argued below and presented with separate headings and sub-heading as required by 37 C.F.R. § 41.37(c)(1)(vii).

A. Rejection under 35 U.S.C. §112, second paragraph

Claim 4 is rejected under 35 U.S.C. §112, second paragraph as being indefinite. The Final Office Action asserts that the phrase "approximately" in claim 4 renders the scope of the claim unascertainable, *see* pages 7-8 of the Final Office Action. The Final Office Action alleges that the specification fails to provide any standard for measuring the degree for the use of the term "approximately", and thus maintains that the term renders the claim indefinite to one of ordinary skill in the art. For the reasons provided below, Appellant respectfully traverses this rejection.

First, use of terms of degree, such as "approximately," in patent claims is permissible. M.P.E.P. §2173.05(b) explains that: "The fact that claim language, including terms of degree, may not be precise, does not automatically render the claim indefinite under 35 U.S.C. 112, second paragraph." *Citing Seattle Box Co., v. Industrial Crating & Packing, Inc.*, 221 USPQ 568 (Fed. Cir. 1984). "Acceptability of the claim language depends on whether one of ordinary skill in the art would understand what is claimed, in light of the specification." M.P.E.P. § 2173.05(b). As discussed below, the use of the term "approximately" in claim 4 is sufficiently definite under 35 U.S.C. § 112, second paragraph.

Claim 4 recites "partitioning said file into said plurality of subfiles that are each approximately equal in size." Thus, claim 4 does not require that each of the subfiles be exactly equal in size, but instead recites that they are approximately equal in size.

M.P.E.P. § 2173.05(b) explains:

> When a term of degree is presented in a claim, first a determination is to be made as to whether the specification provides some standard for measuring that degree. If it does not, a determination is made as to whether one of ordinary skill in the art, in view of the prior art and the status of the art, would be nevertheless reasonably apprised of the scope of the invention.

In the present case, the specification provides a standard for measuring the degree of "approximately" in at least paragraphs 0027-0028, 0036-0038, and 0045 with regard to the size of the subfiles. For instance, the specification explains at paragraph 0027 that "an efficient distribution of the file among the plurality of nodes is enabled." Thus, one of

ordinary skill in the art would recognize that an approximation that permits efficient distribution of the file would be suitable.

Further, even without such a standard for measuring the degree being provided in the specification, one of ordinary skill in the art considering the subject matter of the specification would understand that each subfile need not be identical in size. For instance, the number of subfiles into which a given file is divided may not permit an equal allocation of size to each of the subfiles. Thus, one of ordinary skill in the art would appreciate how to measure the degree of "approximation" appropriate for the size of the subfiles.

The Final Office Action appears to ignore the above-noted provision of M.P.E.P. § 2173.05(b) that even if the specification does not provide a standard for measuring the degree of approximation (which Appellant maintains does in this case), the claim is nevertheless proper unless it is shown that one of ordinary skill in the art, considering the status of the art, would not be nevertheless reasonably apprised of the scope of the approximation. Instead, the Final Office Action concludes that "without support in the specification for a standard for measuring the degree of 'approximately' ... claim 4 still remains rejected under 35 U.S.C. 112 as being unclear". Page 8 of the Final Office Action. As discussed above, Appellant maintains that the specification provides such a standard for measuring the approximation, and in any case provides sufficient description that one of ordinary skill in the art, considering the status of the art, would nevertheless be sufficiently apprised of the scope of approximation.

Further, M.P.E.P. § 2173.05(b) also explains that: "When relative terms are used in claims wherein the improvement over the prior art rests entirely upon size or weight of an element in a combination of elements, the adequacy of the disclosure of a standard is of greater criticality." In the present case, the claimed improvement over the prior art does not rest entirely upon the size of the recited subfiles, and thus the adequacy of the disclosure of a standard for measuring the degree of the term "approximately" in claim 4 is of less criticality.

In response to the above, the Final Office Action expressly ignores this argument by stating that the "Applicant's argument that the use of the term 'approximately' is of less criticality ... is an irrelevant argument." Page 5 of the Final Office Action. In view of M.P.E.P. § 2173.05(b), this is not irrelevant, and it is improper for the Examiner to expressly

choose to ignore this provision of the M.P.E.P. Further, the Examiner appears to misunderstand the reasoning of M.P.E.P. § 2173.05(b) and the above argument because the Examiner suggests in the Final Office Action that "since the term 'approximately' has been shown to be of less criticality to the Applicant, a suggestion to amend the claim ... to remove the word 'approximately' from Claim 4." Page 6 of the Final Office Action. The term "approximately" is not of less criticality to the Applicant, but rather its importance is to make clear that the subfiles need not be exactly equal in size. M.P.E.P. § 2173.05(b) clarifies that when the improvement over the prior art rests entirely upon size, then a more specific disclosure of a standard for measuring a degree of approximation of the size is of critical importance for definiteness. However, when as in the present case, the improvement over the prior art does not rest entirely upon size (e.g., claim 1 from which claim 4 depends recites no size feature of the subfiles whatsoever), then the disclosure of a standard for measuring the degree of approximation is more relaxed. Particularly, considering that such a more relaxed standard is applicable here, and in view of the above-identified disclosure in the specification, Appellant maintains that one of ordinary skill in the art is sufficiently apprised of the scope of claim 4.

In view of the above, the rejection of claim 4 under 35 U.S.C. §112, second paragraph should be overturned.

B. Rejections under 35 U.S.C. §103(a) over *Chung* in view of *Zayas*

Claims 1, 3-17, 19-22, 25, 26, and 28-31 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Chung* in view of *Zayas*. Appellant respectfully traverses these rejections below.

To establish a prima facie case of obviousness, three basic criteria must be met. *See* M.P.E.P. § 2143. First, there must be some suggestion or motivation, either in the applied references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the applied references must teach or suggest all the claim limitations. Without conceding any other criteria, Appellant respectfully asserts that the combination of *Chung* and *Zayas* fails to teach or suggest all of the claim limitations,

and the Examiner has failed to properly establish sufficient motivation for combining the *Chung* and *Zayas* references, as discussed further below.

1. The Applied Combination Fails to Teach or Suggest All Claim Elements

Independent Claim 1 and Dependent Claims 4-5, 9-13, and 16

Independent claim 1 recites:

> A method comprising:
> partitioning a file into a plurality of subfiles;
> distributing the plurality of subfiles from a first node to a first group comprising a plurality of recipient nodes, wherein at least one subfile is distributed from the first node to each recipient node of said first group but no individual recipient node receives all of said plurality of subfiles; and
> exchanging subfiles among said plurality of recipient nodes of said first group such that each recipient node of said first group obtains all of said plurality of subfiles, wherein at least one recipient node of said first group begins communicating a portion of its respective subfile that it is receiving from the first node to at least one other recipient node of said first group before the at least one recipient node fully receives its respective subfile. (Emphasis added).

The combination of *Chung* and *Zayas* fails to teach or suggest at least the above-emphasized element of claim 1. As discussed below, the applied combination fails to teach or suggest at least: 1) exchanging subfiles among a plurality of recipient nodes of a first group such that each recipient node of the first group obtains all of the plurality of subfiles; and 2) wherein at least one recipient node of the first group begins communicating a portion of its respective subfile that it is receiving from the first node to at least one other recipient node of the first group before the at least one recipient node fully receives its respective subfile. The disclosure of each reference is addressed below to illustrate that the combination of the disclosures fails to teach or suggest at least these elements of claim 1.

Chung is directed to dividing a file into subfiles which are then distributed to various servers such that the entire file is not required to be stored to each of the servers. *Chung* explains at paragraphs 0005-0006 that replicating a full file onto a large number of servers is undesirable because it uses large amounts of expensive disk storage, etc. Thus, *Chung* proposes that a file be divided into a plurality of subfiles that are distributed to different servers to avoid the entire file from being distributed to each server. FIGURE 3 of *Chung*

illustrates an example in which a file is divided into 16 segments. Segments 1, 5, 9, and 13 form a first subfile "S1", segments 2, 6, 10, and 14 form a second subfile "S2", segments 3, 7, 11, and 15 form a third subfile "S3", and segments 4, 8, 12, and 16 form a fourth subfile "S4". As shown in FIGURE 4, subfiles S1 and S2 are stored to Server A, subfiles S1, S3, and S4 are stored to Server B, subfiles S1 and S3 are stored to Server C, and subfiles S2 and S4 are stored to Server D. In no case is the entire file distributed to the servers in *Chung*, but rather only a portion of the subfiles that make up the entire file are distributed to a given server. Indeed, the express motivation for distributing subfiles in *Chung* is to avoid distributing all of the subfiles to each server. Thus, *Chung* fails to teach or suggest exchanging subfiles among a plurality of recipient nodes of a first group such that each recipient node of the first group obtains all of the plurality of subfiles.

Zayas is directed to an infrastructure in which volumes are replicated on each of a plurality of servers. The infrastructure permits different "replication modules" to be utilized for managing the replication (e.g., distributing updates to the volumes, etc.) of different volumes. For instance, FIG. 2A of *Zayas* shows an example in which a replication module A 265A is utilized for managing replication of a volume V3, while a different replication module B 265B is utilized for managing replication of volumes V1 and V2. Thus, *Zayas* explains that if one of the replication modules employed incurs large overhead for keeping the volumes that it manages consistent, this does not lead necessarily to a large overhead for the volumes managed by a different replication module, *see e.g.* column 4, lines 26-35 of *Zayas*.

Thus, *Zayas* describes a system in which entire volumes of files are replicated onto a plurality of different servers. *Zayas* is not concerned, however, with how the files are distributed to the different servers. For instance, presumably one server in *Zayas* may simply distribute a full file to each of the other servers to which the file is to be replicated. *Zayas* is instead concerned with a system in which different modules can be used for managing updates to different volumes in order to maintain consistency in the volumes across the different servers to which they are stored. Accordingly, *Zayas* also fails to teach or suggest exchanging subfiles among a plurality of recipient nodes of a first group such that each recipient node of the first group obtains all of the plurality of subfiles.

The Final Office Action cites to column 3, lines 35-39 of *Zayas* as teaching the above element of claim 1, *see* page 3 of the Final Office Action. Column 3, lines 35-39 of *Zayas* merely provides:

> The user does not see network 215 directly, but network 215 does exist. In general, each file system 205A, 205B, and 205C stores several volumes of files, each of which can be replicated on a different set of file servers.

This merely mentions that volumes of files can be replicated to different file servers without providing any teaching as to how such files are replicated to the different file servers. Again, presumably each file may be distributed from a single server to all of the other servers in *Zayas*. In any case, *Zayas* provides no teaching or suggestion of its servers exchanging subfiles as recited in the above element of claim 1.

In view of the above, *Chung* fails to teach or suggest this element, and instead expressly teaches away from this element by teaching a distribution technique that attempts to avoid each server from receiving all of the subfiles. Further, *Zayas* fails to address exchanging of subfiles among a plurality of recipient nodes as it fails to address distributing the files at all, but instead addresses managing updates to volumes of files once the volumes of files are put in place on various servers. Thus, because neither *Chung* nor *Zayas* teaches or suggests exchanging subfiles among a plurality of recipient nodes of a first group such that each recipient node of the first group obtains all of the plurality of subfiles, the applied combination of their disclosures fails to teach or suggest this element of claim 1.

Additionally, the applied combination fails to teach or suggest that at least one recipient node of the first group begins communicating a portion of its respective subfile that it is receiving from the first node to at least one other recipient node of the first group before the at least one recipient node fully receives its respective subfile. The Final Office Action asserts that *Chung* discloses this element, citing to paragraph 0016 of *Chung*, *see* page 3 of the Final Office Action. Appellant disagrees. As discussed further below, while *Chung* mentions that subfiles may be distributed to different servers, and may then be streamed in parallel from the servers to an end user, *Chung* makes no mention whatsoever of a given recipient node of a subfile in a group beginning to communicate a portion of the subfile that the given recipient node is receiving to another node in the group before the given recipient

node fully receives the subfile. First, the servers to which the subfiles are distributed to not exchange their respective subfiles, and *Chung* provides no teaching whatsoever of any of the servers beginning to communicate a subfile to another server before the subfile is fully received. Further, while subfiles may be streamed to an end user from the servers, *Chung* does not teach or suggest that a server begins streaming a subfile to an end user before the subfile is fully received by the server. Additionally, *Chung* provides no teaching that the end user communicates a received subfile to another recipient node, and certainly fails to teach or suggest that the end user begins communicating the received subfile to another recipient node before the end user fully receives the subfile.

The Examiner appears to contend that the servers of *Chung* provide the recited first group comprising a plurality of recipient nodes. However, *Chung* provides no teaching of one server communicating a subfile that it receives to another of the servers. Further, if the Examiner further considers an end user of *Chung* as a recipient node in the recited first group, *Chung* likewise fails to teach or suggest that the end user communicates the subfile that it receives to another node. Thus, irrespective of how a given end user may receive a subfile from the servers (e.g., via streaming or other download technique), *Chung* provides no disclosure of the given end user communicating the subfile that it receives to another recipient nodes. *Chung* certainly provides no teaching of one recipient node (the end user or a server) beginning to communicate a portion of its respective subfile that it is receiving to another of the recipient nodes (another server or end user) before the one recipient node fully receives its respective subfile.

As mentioned above, the Final Office Action asserts that *Chung* teaches this element of claim 1 at paragraph 0016. Paragraph 0016 of *Chung* merely provides:

> One aspect of the invention involves dividing a single file into multiple files or sub-files. A sub-file has a file name and other file attributes, and is treated by the operating system's file system as just another file. The divided files or sub-files may then be distributed and stored onto one or more servers. When an end user wants the file to be delivered in a streaming fashion, the sub-files can be transmitted in parallel and simultaneously from one or more servers, which increases the rate at which data can be delivered.

This portion of *Chung* mentions that the subfiles can be distributed (from an origination node that contains the full file) to the various servers, such as servers A-D of

FIGURE 4. This portion of *Chung* further mentions that the subfiles from the servers can be distributed to an end user (client) in parallel and delivered to the end user in a streaming fashion. Thus, if a client such as client 610 in FIGURE 6 of *Chung* requests a file, the various subfiles S1-S4 may be sent to the client in parallel from the different servers A-D.

As discussed above, *Chung* provides no teaching or suggestion of a recipient node (either a server or an end user) communicating its subfile to another recipient node. Further, *Chung* provides no teaching or suggestion of one recipient node (either a server or an end user) beginning to communicate a portion of its respective subfile to another of the recipient nodes before the one recipient node fully receives its respective subfile. For instance, even when servers A-D communicate their respective subfiles to the client node 610, *Chung* makes no mention of the servers beginning such communication of a subfile from the server to the client before the subfile is fully received by the server.

Thus, *Chung* fails to teach or suggest the above element of claim 1. *Zayas* is not relied upon as teaching such element, nor does it do so. Because each reference fails to teach or suggest this further element of claim 1, the applied combination likewise fails to teach or suggest the element.

In view of the above, the applied combination of *Chung* and *Zayas* fails to teach or suggest all elements of claim 1, and thus the rejection of claim 1 should be overturned.

Also, dependent claims 4-5, 9-13, and 16 depend either directly or indirectly from claim 1, thus inheriting all of the limitations of independent claim 1. These claims are believed to be allowable over the applied combination of *Chung* and *Zayas* for at least the reasons presented above for claim 1. Therefore, Appellant respectfully requests that the Board overturn the rejection of claims 4-5, 9-13, and 16.

Dependent Claim 3

Dependent claim 3 depends from claim 1, and thus inherits all of the limitations of claim 1 in addition to its own supplied limitations. It is respectfully submitted that dependent claim 3 is allowable at least because of its dependence from claim 1 for the reasons discussed above.

Claim 3 further recites "partitioning said file into said plurality of subfiles corresponding in number to a number of said recipient nodes in said first group." The combination of *Chung* and *Zayas* further fails to teach or suggest this element of claim 3. *Zayas* fails to teach or suggest any such partitioning of a file into a plurality of subfiles. However, the Final Office Action appears to rely on *Chung* as teaching or suggesting this further element of claim 3, *see* pages 10-11 of the Final Office Action. While *Chung* discloses partitioning a file into a plurality of subfiles, *Chung* fails to teach or suggest that the number of subfiles into which the file is partitioned corresponds in number to a number of recipient nodes in a group. *Chung* does not teach that the number of subfiles into which a file is partitioned has any relationship to a number of recipient nodes to which the file is to be distributed.

As discussed hereafter, *Chung* neither expressly nor inherently teaches this element, nor does *Chung* even suggest this element of claim 3. The Final Office Action appears to concede that *Chung* does not expressly disclose partitioning a file into a plurality of subfiles corresponding in number to a number of recipient nodes. For instance, the Final Office Action concedes that "Chung admits the number of subfiles is arbitrary" (page 11 of the Final Office Action), as opposed to teaching that the number of subfiles corresponds to the number of recipient nodes.

However, the Examiner appears to assert that the element is either inherent in the teachings of *Chung* or is suggested by *Chung*. For instance, the Final Office Action concludes that "the number of subfiles could correspond in number to a number of said recipient nodes in said first group" (emphasis added). Page 11 of the Final Office Action. This merely asserts that the teaching of *Chung* could be modified so as to have its number of subfiles correspond to the number of recipient nodes, but fails to identify any teaching or suggestion of *Chung* of such a modification.

Chung does not inherently teach this element because inherency requires that a teaching necessarily flow from the disclosure of the reference. In this case, partitioning of subfiles arbitrarily as disclosed by *Chung* does not necessarily mean that the number of subfiles corresponds to the number of recipient nodes. Indeed, this could possibly never be the case using the arbitrary method taught by *Chung*. Thus, the element does not necessarily

flow from the disclosure of *Chung*, and therefore the element is not inherent from the teaching of *Chung*.

Further, *Chung* provides no suggestion of partitioning its subfiles to a number that corresponds to the number of recipient nodes. Again, *Chung* fails to disclose any relationship between its number of subfiles and the number of recipient nodes, but instead (as the Examiner notes) discloses that its number of subfiles is arbitrary. Thus, no suggestion whatsoever is provided in *Chung* regarding partitioning the subfiles to a number that corresponds to the number of recipient nodes.

Because *Chung* provides no express or inherent teaching of this element, nor does *Chung* provide any suggestion of this element, and because *Zayas* fails to teach or suggest this further element of claim 3, the rejection of the claim under 35 U.S.C. §103(a) over the combination of *Chung* and *Zayas* is improper. Therefore, this rejection should be overturned.

Dependent Claim 6

Dependent claim 6 depends indirectly from claim 1, and thus inherits all of the limitations of claim 1 in addition to its own supplied limitations. It is respectfully submitted that dependent claim 6 is allowable at least because of its dependence from claim 1 for the reasons discussed above.

Claim 6 further recites "determining a suitable number of concurrent communication connections that can be used for communication of information between one of the nodes and a plurality of the other nodes; and determining said number of recipient nodes to include in said first group as corresponding in number to said number of concurrent communication connections." The combination of *Chung* and *Zayas* further fails to teach or suggest this element of claim 6. *Zayas* is not relied upon as teaching or suggesting this element, nor does it do so. Further, *Chung* fails to teach or suggest this element. As discussed below, *Chung* fails to teach or suggest determining a group of recipient nodes that comprises a number of nodes determined based on a determined number of concurrent communication connections that can be formed by one of the nodes with others of the nodes.

The Final Office Action cites to paragraph 0033 of *Chung* as teaching or suggesting determining a number of recipient nodes to include in a first group as corresponding in number to the determined number of concurrent communication connections that can be used for communication of information between one of the nodes and a plurality of the other nodes, *see* page 12 of the Final Office Action. Paragraph 0033 of *Chung* merely provides:

> The four sub-files S1 through S4 may be distributed to multiple servers. As shown in the example of FIG. 4, the first sub-file S1 may be distributed to three servers, servers A, B, and C. The second sub-file S2 may be distributed to servers D and A. The third sub-file S3 may be distributed to servers B and C. The fourth sub-file S4 may be distributed to servers D and B. It is understood that the sub-files may be distributed to a fewer or greater number of servers. Each sub file may be transmitted over a separate communication link, such as a TCP/IP connection to a receiver. In one embodiment, the Hyper Text Transfer Protocol (HTTP) may be used for each connection.

This merely teaches that sub-files are distributed to servers over separate communication links. This fails to provide any teaching or suggestion whatsoever of determining a number of the recipient servers to include in a group as corresponding to a number of concurrent connections that one of the servers can form with others of the servers.

Because both *Chung* and *Zayas* fail to teach or suggest this further element of claim 6, the applied combination fails to teach or suggest the element. Therefore, the rejection of claim 6 should be overturned.

Dependent Claim 7

Dependent claim 7 depends from claim 1, and thus inherits all of the limitations of claim 1 in addition to its own supplied limitations. It is respectfully submitted that dependent claim 7 is allowable at least because of its dependence from claim 1 for the reasons discussed above.

Claim 7 further recites "distributing the plurality of subfiles to said plurality of recipient nodes of said first group concurrently." The combination of *Chung* and *Zayas* further fails to teach or suggest this element of claim 7. *Zayas* is not relied upon as teaching or suggesting this element, nor does it do so. Further, *Chung* fails to teach or suggest this element. As discussed below, *Chung* fails to teach or suggest distributing a plurality of

subfiles to a plurality of recipient nodes concurrently. Instead, *Chung* teaches that subfiles are distributed to recipient servers, but fails to teach or suggest that the subfiles are distributed to the plurality of recipient servers concurrently. Further, *Chung* teaches that the subfiles may be concurrently communicated from the servers to an end user (client), but this also fails to teach or suggest concurrently communicating the plurality of subfiles to a plurality of recipient nodes (as the client is a single recipient node).

The Final Office Action cites to paragraphs 0016-0017 of *Chung* as teaching or suggesting this element of claim 7, *see* page 12 of the Final Office Action. Paragraphs 0016-0017 of *Chung* merely provide:

> One aspect of the invention involves dividing a single file into multiple files or sub-files. A sub-file has a file name and other file attributes, and is treated by the operating system's file system as just another file. The divided files or sub-files may then be distributed and stored onto one or more servers. When an end user wants the file to be delivered in a streaming fashion, the sub-files can be transmitted in parallel and simultaneously from one or more servers, which increases the rate at which data can be delivered.
>
> A second aspect of the invention provides that each sub-file may reside on more than one server to provide redundancy. If one server is not available, or if the transmission link is slow or not available, the sub-file can be streamed from another server. In one embodiment, each end user may receive multiple sub-files simultaneously from multiple servers. Disk input/output bandwidth is saved because only the necessary fraction of the data needs to be read from each server. In an ordinary system, the full file would have to be read on each server, even though only a portion of the data is needed.

Again, this portion of *Chung* mentions that subfiles are distributed to servers, but fails to teach or suggest that the subfiles are communicated concurrently to the plurality of servers. Further, this portion of *Chung* mentions that when "an end user wants the file to be delivered in a streaming fashion, the sub-files can be transmitted in parallel and simultaneously from one or more servers" to the end user. This also fails to teach or suggest concurrently communicating the subfiles to a plurality of recipient nodes.

Because both *Chung* and *Zayas* fail to teach or suggest this further element of claim 7, the applied combination fails to teach or suggest the element. Therefore, the rejection of claim 7 should be overturned.

Dependent Claim 8

Dependent claim 8 depends from claim 1, and thus inherits all of the limitations of claim 1 in addition to its own supplied limitations. It is respectfully submitted that dependent claim 8 is allowable at least because of its dependence from claim 1 for the reasons discussed above.

Claim 8 further recites "each of said plurality of recipient nodes establishing concurrent communication connections to every other recipient node of said first group." The combination of *Chung* and *Zayas* further fails to teach or suggest this element of claim 8. *Zayas* is not relied upon as teaching or suggesting this element, nor does it do so. Further, *Chung* fails to teach or suggest this element. As discussed below, *Chung* fails to teach or suggest each of the recipient nodes establishing concurrent communication connections to every other recipient node of the first group.

In *Chung*, subfiles are distributed to recipient servers. However, each of the recipient servers does not establish a concurrent communication connection to every other recipient server. Indeed, in *Chung*, one recipient server does not communicate its subfile to another recipient server. Further, in *Chung*, each recipient server may concurrently form a connection to an end user (client) in order to send subfile(s) from the servers to the end user client. However, this fails to teach or suggest a plurality of recipient nodes each establishing a concurrent communication connection to every other of the plurality of recipient nodes, but instead merely provides for a plurality of servers forming a concurrent communication connection with a single end user client.

Because both *Chung* and *Zayas* fail to teach or suggest this further element of claim 8, the applied combination fails to teach or suggest the element. Therefore, the rejection of claim 8 should be overturned.

Dependent Claim 14

Dependent claim 14 depends indirectly from claim 1, and thus inherits all of the limitations of claim 1 in addition to its own supplied limitations. It is respectfully submitted

that dependent claim 14 is allowable at least because of its dependence from claim 1 for the reasons discussed above.

Claim 14 further recites "wherein each recipient node of said first group begins communicating the subfile that it is receiving from said first node to said at least one node of the second group before fully receiving the subfile from the first node" (emphasis added). The combination of *Chung* and *Zayas* further fails to teach or suggest this element of claim 14. As discussed above with claim 1, neither *Zayas* nor *Chung* teaches or suggests a recipient node beginning to communicate a subfile that it is receiving to another node before the recipient node fully receives the subfile.

Because both *Chung* and *Zayas* fail to teach or suggest this further element of claim 14, the applied combination fails to teach or suggest the element. Therefore, the rejection of claim 14 should be overturned.

Dependent Claim 15

Dependent claim 15 depends from claim 1, and thus inherits all of the limitations of claim 1 in addition to its own supplied limitations. It is respectfully submitted that dependent claim 15 is allowable at least because of its dependence from claim 1 for the reasons discussed above.

Claim 15 further recites "logically organizing a plurality of groups of recipient nodes into a primary multicast tree, wherein the groups of the primary multicast tree are logically organized sequentially such that intermediate groups of the primary multicast tree each communicate the file to a next sequential group of the primary multicast tree and wherein each intermediate group begins to communicate the file to a next sequential group of the primary multicast tree before fully receiving the file from a preceding group of the primary multicast tree" (emphasis added). The combination of *Chung* and *Zayas* further fails to teach or suggest this element of claim 15. As discussed above with claim 1, neither *Zayas* nor *Chung* teaches or suggests a recipient node beginning to communicate a subfile that it is receiving to another node before the recipient node fully receives the subfile.

Because both *Chung* and *Zayas* fail to teach or suggest this further element of claim 15, the applied combination fails to teach or suggest the element. Therefore, the rejection of claim 15 should be overturned.

Independent Claim 17 and Dependent Claim 21

Independent claim 17 recites:

> A system comprising:
> means for partitioning a file into a plurality of subfiles;
> an origin node comprising means for distributing all of said plurality of subfiles from said origin node to a first group comprising a plurality of recipient nodes, wherein at least one subfile is distributed from the origin node to each recipient node of said first group but not all of said plurality of subfiles are distributed from the origin node to any of the recipient nodes of said first group; and
> said recipient nodes of said first group each comprising means for exchanging their respective subfiles received from said origin node such that each recipient node of said first group obtains all of said plurality of subfiles, wherein said means for exchanging of at least one recipient node of said first group begins communicating a portion of its respective subfile that it is receiving from the first node to at least one other recipient node of said first group before the at least one recipient node fully receives its respective subfile from the origin node. (Emphasis added).

The combination of *Chung* and *Zayas* fails to teach or suggest at least the above-emphasized element of claim 17. As discussed above with claim 1, the combination of *Chung* and *Zayas* fails to teach or suggest "wherein said means for exchanging of at least one recipient node of said first group begins communicating a portion of its respective subfile that it is receiving from the first node to at least one other recipient node of said first group before the at least one recipient node fully receives its respective subfile from the origin node", as recited by claim 17. As further discussed above with claim 1, the combination of *Chung* and *Zayas* fails to teach or suggest recipient nodes "exchanging their respective subfiles received from said origin node such that each recipient node of said first group obtains all of said plurality of subfiles", as recited by claim 17.

Accordingly, the rejection of claim 17 should be overturned.

Also, dependent claim 21 depends from claim 17, thus inheriting all of the limitations of independent claim 17. Claim 21 is believed to be allowable over the applied combination

of *Chung* and *Zayas* for at least the reasons presented above for claim 17. Therefore, Appellant respectfully requests that the Board overturn the rejection of claim 21.

Dependent Claim 19

Dependent claim 19 depends from claim 17, and thus inherits all of the limitations of claim 17 in addition to its own supplied limitations. It is respectfully submitted that dependent claim 19 is allowable at least because of its dependence from claim 17 for the reasons discussed above.

Claim 19 further recites "means for partitioning said file into said plurality of subfiles corresponding in number to a number of said recipient nodes in said first group." The combination of *Chung* and *Zayas* further fails to teach or suggest this element of claim 19, as discussed in greater detail above with claim 3.

Because *Chung* provides no express or inherent teaching of this element, nor does *Chung* provide any suggestion of this element, and because *Zayas* fails to teach or suggest this further element of claim 19, the rejection of the claim under 35 U.S.C. §103(a) over the combination of *Chung* and *Zayas* is improper. Therefore, this rejection of claim 19 should be overturned.

Dependent Claim 20

Dependent claim 20 depends from claim 17, and thus inherits all of the limitations of claim 17 in addition to its own supplied limitations. It is respectfully submitted that dependent claim 20 is allowable at least because of its dependence from claim 17 for the reasons discussed above.

Claim 20 further recites "means for distributing the plurality of subfiles to said plurality of recipient nodes of said first group concurrently." The combination of *Chung* and *Zayas* further fails to teach or suggest this element of claim 20, as discussed in greater detail above with claim 7.

Because both *Chung* and *Zayas* fail to teach or suggest this further element of claim 20, the applied combination fails to teach or suggest the element. Therefore, the rejection of claim 20 should be overturned.

Dependent Claim 22

Dependent claim 22 depends indirectly from claim 17, and thus inherits all of the limitations of claim 17 in addition to its own supplied limitations. It is respectfully submitted that dependent claim 22 is allowable at least because of its dependence from claim 17 for the reasons discussed above.

Claim 22 further recites "wherein said means for communicating of each recipient node of said first group begins communicating the subfile that such recipient node is receiving from said origin node to at least one node of the second group before fully receiving the subfile from the origin node" (emphasis added). The combination of *Chung* and *Zayas* further fails to teach or suggest this element of claim 22. As discussed above with claim 1, neither *Zayas* nor *Chung* teaches or suggests a recipient node beginning to communicate a subfile that it is receiving to another node before the recipient node fully receives the subfile.

Because both *Chung* and *Zayas* fail to teach or suggest this further element of claim 22, the applied combination fails to teach or suggest the element. Therefore, the rejection of claim 22 should be overturned.

Independent Claim 25 and Dependent Claims 26 and 30

Independent claim 25 recites:

> A method comprising:
> distributing a plurality of subfiles that comprise a file from a first node to a first group comprising a plurality of recipient nodes, wherein at least one subfile distributed from the first node to each recipient node of said first group but no individual recipient node of said first group receives all of said plurality of subfiles from the first node; and
> exchanging subfiles among said plurality of recipient nodes of said first group such that each recipient node of said first group obtains all of said plurality of subfiles, wherein at least one recipient node of said first group begins communicating a portion of its respective subfile that it is receiving

from the first node to at least one other recipient node of said first group before the at least one recipient node fully receives its respective subfile. (Emphasis added).

The combination of *Chung* and *Zayas* fails to teach or suggest at least the above-emphasized element of claim 25. As discussed above with claim 1, the combination of *Chung* and *Zayas* fails to teach or suggest "wherein at least one recipient node of said first group begins communicating a portion of its respective subfile that it is receiving from the first node to at least one other recipient node of said first group before the at least one recipient node fully receives its respective subfile", as recited by claim 25. As further discussed above with claim 1, the combination of *Chung* and *Zayas* fails to teach or suggest "exchanging subfiles among said plurality of recipient nodes of said first group such that each recipient node of said first group obtains all of said plurality of subfiles", as recited by claim 25.

Accordingly, the rejection of claim 25 should be overturned.

Also, dependent claims 26 and 30 each depends from claim 25, thus inheriting all of the limitations of independent claim 25. Claims 26 and 30 are believed to be allowable over the applied combination of *Chung* and *Zayas* for at least the reasons presented above for claim 25. Therefore, Appellant respectfully requests that the Board overturn the rejection of claims 26 and 30.

Dependent Claim 28

Dependent claim 28 depends from claim 25, and thus inherits all of the limitations of claim 25 in addition to its own supplied limitations. It is respectfully submitted that dependent claim 28 is allowable at least because of its dependence from claim 25 for the reasons discussed above.

Claim 28 further recites "distributing the plurality of subfiles to said plurality of recipient nodes of said first group concurrently." The combination of *Chung* and *Zayas* further fails to teach or suggest this element of claim 28, as discussed in greater detail above with claim 7.

Because both *Chung* and *Zayas* fail to teach or suggest this further element of claim 28, the applied combination fails to teach or suggest the element. Therefore, the rejection of claim 28 should be overturned.

Dependent Claim 29

Dependent claim 29 depends from claim 25, and thus inherits all of the limitations of claim 25 in addition to its own supplied limitations. It is respectfully submitted that dependent claim 29 is allowable at least because of its dependence from claim 25 for the reasons discussed above.

Claim 29 further recites "each of said plurality of recipient nodes establishing concurrent communication connections to every other recipient node of said first group." The combination of *Chung* and *Zayas* further fails to teach or suggest this element of claim 29, as discussed in greater detail above with claim 8.

Because both *Chung* and *Zayas* fail to teach or suggest this further element of claim 29, the applied combination fails to teach or suggest the element. Therefore, the rejection of claim 29 should be overturned.

Dependent Claim 31

Dependent claim 31 depends indirectly from claim 25, and thus inherits all of the limitations of claim 25 in addition to its own supplied limitations. It is respectfully submitted that dependent claim 31 is allowable at least because of its dependence from claim 25 for the reasons discussed above.

Claim 31 further recites "wherein each recipient node of said first group begins communicating the subfile that it is receiving from said first node to at least one node of the second group before fully receiving the subfile from the first node" (emphasis added). The combination of *Chung* and *Zayas* further fails to teach or suggest this element of claim 31. As discussed above with claim 1, neither *Zayas* nor *Chung* teaches or suggests a recipient node beginning to communicate a subfile that it is receiving to another node before the recipient node fully receives the subfile.

Because both *Chung* and *Zayas* fail to teach or suggest this further element of claim 31, the applied combination fails to teach or suggest the element. Therefore, the rejection of claim 31 should be overturned.

2. Insufficient Motivation to Combine the References in the Manner Applied

Further, insufficient motivation exists for combining the teachings of *Chung* and *Zayas* in the manner relied upon by the Final Office Action. The Final Office Action alleges that one of ordinary skill in the art would be motivated to combine *Chung* and *Zayas* to arrive at a system in which subfiles are exchanged among a plurality of recipient nodes such that each recipient node obtains all of the subfiles, *see e.g.,* the rejection of claim 1. However, *Chung* expressly teaches away from any such system that results in each recipient node obtaining all of the subfiles. *Chung* expressly teaches at paragraphs 0005-0006 that replicating a full file onto a large number of servers is undesirable because it uses large amounts of expensive disk storage, etc. Thus, *Chung* proposes that a file be divided into a plurality of subfiles that are distributed to different servers without requiring that the entire file be distributed to each server.

On the other hand, *Zayas* is directed to a system in which full volumes of files are replicated on different servers and replication modules are employed for maintaining consistency among the volumes on the various servers. Thus, *Zayas* goes directly against the teaching of *Chung*. As such, one of ordinary skill in the art would not be motivated to combine the teaching of *Zayas* with the teaching of *Chung*. Thus, for this further reason, the rejection of claims 1, 3-17, 19-22, 25, 26, and 28-31 should be withdrawn.

C. Rejections under 35 U.S.C. §103(a) over *Chung* in view of *Zayas* and *Bushmitch*

Claims 2, 18, 23, 24, 27, and 32-34 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Chung* in view of *Zayas* and further in view of *Bushmitch*. Appellant respectfully traverses this rejection for the reasons below.

1. The Applied Combination Fails to Teach or Suggest All Claim Elements

Independent Claim 23

Independent claim 23 recites:

> A system comprising:
> an origin node operable to partition a file into a plurality of subfiles, wherein said plurality of subfiles correspond in number to a number of recipient nodes in a first group to which said file is to be distributed;
> said origin node operable to distribute all of said plurality of subfiles to said recipient nodes, wherein a different subfile is distributed from said origin node to each of said recipient nodes; and
> said recipient nodes operable to exchange their respective subfiles received from said origin node such that each recipient node obtains all of said plurality of subfiles, wherein at least one recipient node is operable to begin communicating a portion of its respective subfile that it is receiving from the origin node to at least one other recipient node before the at least one recipient node fully receives its respective subfile from the origin node. (Emphasis added).

The combination of *Chung*, *Zayas*, and *Bushmitch* fails to teach or suggest at least the above-emphasized elements of claim 23. First, the combination fails to teach or suggest "said origin node operable to distribute all of said plurality of subfiles to said recipient nodes, wherein a different subfile is distributed from said origin node to each of said recipient nodes" (emphasis added). The Final Office Action appears to concede that *Chung* and *Zayas* fail to teach or suggest this element of claim 23. However, the Final Office Action asserts on page 5 thereof that *Bushmitch* teaches this element. Appellant disagrees, as discussed below.

The Final Office Action cites to col. 4, lines 1-10 and Fig. 2 of *Bushmitch* as teaching this element of claim 23. Col. 4, lines 1-17 of *Bushmitch* provides:

> FIG. 2 shows in greater detail how the multiple description coding works. In FIG. 2, two multimedia streams, designated X and Y are stored across a plurality of media push engines. These streams are broken into substream components, designated by subscripts, $X_1, X_2, \ldots, X_n$; $Y_1, Y_2, \ldots Y_n$. Note that the substream components stored across the plurality of media push engines are not necessarily the same for each engine. Thus media push engine 12a stores components X_1, X_6 and Y_1. Similarly, media push engine 12b stores components X_2, X_7 and Y_2.

> The multimedia clients reassemble the data stream of interest by summing the proper substream components in the proper order. Thus multimedia client 16a reconstructs stream X as illustrated, while multimedia 16b constructs stream Y as illustrated. At the multimedia client it matters not that individual substream components arrive through different paths from different media push engines.

Thus, *Bushmitch* teaches that substream components may be stored to different multimedia push engines (MPEs), which may in turn push the substream components to a requesting client. *Bushmitch* does not teach or suggest that an origin node distribute a plurality of subfiles to recipient nodes, wherein a different subfile is distributed from said origin node to each of said recipient nodes. For instance, the example of Fig. 2 of *Bushmitch* clearly shows that MPEs 12b and 12d both have substream Y_2 stored thereto.

Further, the combination of *Chung*, *Zayas*, and *Bushmitch* fails to teach or suggest "wherein at least one recipient node is operable to begin communicating a portion of its respective subfile that it is receiving from the origin node to at least one other recipient node before the at least one recipient node fully receives its respective subfile from the origin node" (emphasis added), as recited by claim 23. The Final Office Action relies upon *Chung* as teaching this element, *see* page 17 of the Final Office Action. However, as discussed above with claim 1, *Chung* does not teach or suggest this element. *Zayas* and *Bushmitch* are not relied upon as teaching or suggesting this element of claim 23, nor do they do so.

Additionally, the combination of *Chung*, *Zayas*, and *Bushmitch* fails to teach or suggest "said recipient nodes operable to exchange their respective subfiles received from said origin node such that each recipient node obtains all of said plurality of subfiles" (emphasis added), as recited by claim 23. The Final Office Action relies upon *Zayas* as teaching this element of claim 23, *see* page 18 of the Final Office Action. However, as discussed above with claim 1, *Zayas* does not teach or suggest this element. *Chung* and *Bushmitch* are not relied upon as teaching or suggesting this element of claim 23, nor do they do so. Indeed, *Chung* expressly teaches away from each recipient node obtaining all of the plurality of subfiles.

Finally, the applied combination fails to teach or suggest "an origin node operable to partition a file into a plurality of subfiles, wherein said plurality of subfiles correspond in number to a number of recipient nodes in a first group to which said file is to be distributed"

(emphasis added). The Final Office Action asserts that *Chung* teaches or suggests this element. As discussed above with claim 4, *Chung* fails to expressly or inherently teach this element, and *Chung* fails to suggest this further element. Likewise, *Zayas* and *Bushmitch* fail to teach or suggest this further element, and therefore the applied combination fails to teach or suggest this element.

In view of the above, the combination of *Chung*, *Zayas*, and *Bushmitch* fails to teach or suggest all elements of claim 23, and therefore the rejection of claim 23 should be overturned.

Independent Claim 32

Independent claim 32 recites:

> A method comprising:
> distributing a plurality of descriptors of a file encoded with multiple description coding (MDC) from a first node to a first group comprising a plurality of recipient nodes, wherein at least one descriptor is distributed from the first node to each recipient node of said first group but not all of said plurality of descriptors are distributed from the first node to any of the recipient nodes of said first group; and
> said plurality of recipient nodes of said first group exchanging their respective descriptors such that each recipient node of said first group obtains all of said plurality of descriptors, wherein at least one recipient node of said first group begins communicating a portion of its respective descriptor that it is receiving from the first node to at least one other recipient node of said first group before the at least one recipient node fully receives its respective descriptor from the first node. (Emphasis added).

The combination of *Chung*, *Zayas*, and *Bushmitch* fails to teach or suggest at least the above-emphasized element of claim 32. First, the combination fails to teach or suggest "wherein at least one recipient node of said first group begins communicating a portion of its respective descriptor that it is receiving from the first node to at least one other recipient node of said first group before the at least one recipient node fully receives its respective descriptor from the first node", as recited by claim 32. The Final Office Action relies upon *Chung* as teaching this element, *see* page 20 of the Final Office Action. However, *Chung* does not teach or suggest this element. As discussed above with claim 1, *Chung* provides no teaching or suggestion of one recipient node beginning to communicate information (e.g., a descriptor) to another recipient node before the one recipient node fully receives such information itself.

Zayas and *Bushmitch* are not relied upon as teaching or suggesting this element of claim 32, nor do they do so.

Additionally, the combination of *Chung*, *Zayas*, and *Bushmitch* fails to teach or suggest "said plurality of recipient nodes of said first group exchanging their respective descriptors such that each recipient node of said first group obtains all of said plurality of descriptors" (emphasis added), as recited by claim 32. The Final Office Action relies upon *Zayas* as teaching this element of claim 32, *see* page 21 of the Final Office Action. However, *Zayas* does not teach or suggest this element. As discussed above with claim 1, *Zayas* is not concerned with how the files (or descriptors for that matter) are distributed to the different servers. For instance, presumably one server in *Zayas* may simply distribute a full file to each of the other servers to which the file is to be replicated. (It is also noted that *Zayas* makes no mention of distributing "descriptors" as recited by claim 32). *Chung* and *Bushmitch* are not relied upon as teaching or suggesting this element of claim 32, nor do they do so. Indeed, *Chung* expressly teaches away from each recipient node obtaining all of the plurality of subfiles.

In view of the above, the combination of *Chung*, *Zayas*, and *Bushmitch* fails to teach or suggest all elements of claim 32, and therefore the rejection of claim 32 should be overturned.

Dependent Claims 2, 18, 24, 27, and 33-34

Each of dependent claims 2, 18, 24, 27, and 33-34 depends, either directly or indirectly, from one of independent claims 1, 17, 23, 25, and 32 (and thus inherits all limitations of its respective independent claim). In view of the above, Appellant respectfully submits that independent claims 1, 17, 23, 25, and 32 are of patentable merit. It is respectfully submitted that dependent claims 2, 18, 24, 27, and 33-34 are allowable at least because of their dependency from their respective independent claims for the reasons discussed above.

B. Insufficient Motivation to Combine the References in the Manner Applied

Applicant further submits that insufficient motivation exists for combining the teachings of *Chung*, *Zayas*, and *Bushmitch* in the manner relied upon by the Final Office Action. As discussed above, *Chung* expressly teaches at paragraphs 0005-0006 that replicating a full file onto a large number of servers is undesirable because it uses large amounts of expensive disk storage, etc. Thus, *Chung* proposes that a file be divided into a plurality of subfiles that are distributed to different servers without requiring that the entire file be distributed to each server. On the other hand, *Zayas* is directed to a system in which full volumes of files are replicated on different servers and replication modules are employed for maintaining consistency among the volumes on the various servers. Thus, *Zayas* goes directly against the teaching of *Chung*. That is, *Chung* expressly teaches away from storing a full file on each server, as in *Zayas*. As such, one of ordinary skill in the art would not be motivated to combine at least the teaching of *Zayas* with the teaching of *Chung*. Thus, for this further reason, the rejection of claims 2, 18, 23, 24, 27, and 32-34 should be overturned.

D. Conclusion

In view of the above, Appellant requests that the board overturn the outstanding rejections of claims 1-34 Attached hereto are a Claims Appendix, Evidence Appendix, and Related Proceedings Appendix. As noted in the attached Evidence Appendix, no evidence pursuant to §§ 1.130, 1.131, or 1.132 or entered by or relied upon by the examiner is being submitted. Also, certain related appeals are identified in Section II above, but as noted by the Related Proceedings Appendix, no decisions have been received in such appeals and thus no copies of decisions in related proceedings are provided.

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Date of Deposit: September 11, 2006

Typed Name: Gail L. Miller

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Respectfully submitted,

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VIII. CLAIMS APPENDIX

Claims Involved in the Appeal of Application Serial No. 10/619,805

1. A method comprising:

partitioning a file into a plurality of subfiles;

distributing the plurality of subfiles from a first node to a first group comprising a plurality of recipient nodes, wherein at least one subfile is distributed from the first node to each recipient node of said first group but no individual recipient node receives all of said plurality of subfiles; and

exchanging subfiles among said plurality of recipient nodes of said first group such that each recipient node of said first group obtains all of said plurality of subfiles, wherein at least one recipient node of said first group begins communicating a portion of its respective subfile that it is receiving from the first node to at least one other recipient node of said first group before the at least one recipient node fully receives its respective subfile.

2. The method of claim 1 wherein said distributing comprising:

distributing from the first node a different subfile to each of said recipient nodes of said first group.

3. The method of claim 1 wherein said partitioning comprises:

partitioning said file into said plurality of subfiles corresponding in number to a number of said recipient nodes in said first group.

4. The method of claim 1 wherein said partitioning further comprises:

partitioning said file into said plurality of subfiles that are each approximately equal in size.

5. The method of claim 1 further comprising:

determining a number of said recipient nodes to include in said first group.

6. The method of claim 5 wherein said determining comprises:

determining a suitable number of concurrent communication connections that can be used for communication of information between one of the nodes and a plurality of the other nodes; and

determining said number of recipient nodes to include in said first group as corresponding in number to said number of concurrent communication connections.

7. The method of claim 1 wherein said distributing comprises:

distributing the plurality of subfiles to said plurality of recipient nodes of said first group concurrently.

8. The method of claim 1 wherein exchanging subfiles among said plurality of recipient nodes of said first group further comprises:

each of said plurality of recipient nodes establishing concurrent communication connections to every other recipient node of said first group.

9. The method of claim 1 wherein said first node and said plurality of recipient nodes of said first group each comprise a server computer.

10. The method of claim 9 wherein said first node and said plurality of recipient nodes are distributed server computers in a Content Distribution Network (CDN).

11. The method of claim 1 further comprising:

said first group of recipient nodes communicating said file to a second group comprising a plurality of recipient nodes.

12. The method of claim 11 further comprising:

each recipient node of said first group communicating a subfile to every recipient node of said second group such that said recipient nodes of said second group each receive all of said plurality of subfiles.

13. The method of claim 11 further comprising:

each recipient node of said first group communicating the subfile that it receives from said first node to at least one node of the second group.

14. The method of claim 13 wherein each recipient node of said first group begins communicating the subfile that it is receiving from said first node to said at least one node of the second group before fully receiving the subfile from the first node.

15. The method of claim 1 further comprising:

logically organizing a plurality of groups of recipient nodes into a primary multicast tree, wherein the groups of the primary multicast tree are logically organized sequentially such that intermediate groups of the primary multicast tree each communicate the file to a next sequential group of the primary multicast tree and wherein each intermediate group begins to communicate the file to a next sequential group of the primary multicast tree before fully receiving the file from a preceding group of the primary multicast tree.

16. The method of claim 15 further comprising:

further logically organizing a plurality of groups of recipient nodes into a secondary multicast tree, wherein at least one group of the primary multicast tree begins communicating the file to at least one group of the secondary multicast tree after the group of the primary multicast tree has fully received the file.

17. A system comprising:

means for partitioning a file into a plurality of subfiles;

an origin node comprising means for distributing all of said plurality of subfiles from said origin node to a first group comprising a plurality of recipient nodes, wherein at least one subfile is distributed from the origin node to each recipient node of said first group but not all of said plurality of subfiles are distributed from the origin node to any of the recipient nodes of said first group; and

said recipient nodes of said first group each comprising means for exchanging their respective subfiles received from said origin node such that each recipient node of said first group obtains all of said plurality of subfiles, wherein said means for exchanging of at least one recipient node of said first group begins communicating a portion of its respective subfile that it is receiving from the first node to at least one other recipient node of said first group before the at least one recipient node fully receives its respective subfile from the origin node.

18. The system of claim 17 wherein said means for distributing comprises:

means for distributing from the origin node a different subfile to each of said recipient nodes of said first group.

19. The system of claim 17 wherein said means for partitioning comprises:

means for partitioning said file into said plurality of subfiles corresponding in number to a number of said recipient nodes in said first group.

20. The system of claim 17 wherein said means for distributing comprises:

means for distributing the plurality of subfiles to said plurality of recipient nodes of said first group concurrently.

21. The system of claim 17 wherein each of said recipient nodes of said first group further comprises:

means for communicating said file to a second group comprising a plurality of recipient nodes.

22. The system of claim 21 wherein said means for communicating of each recipient node of said first group begins communicating the subfile that such recipient node is receiving from said origin node to at least one node of the second group before fully receiving the subfile from the origin node.

23. A system comprising:

an origin node operable to partition a file into a plurality of subfiles, wherein said plurality of subfiles correspond in number to a number of recipient nodes in a first group to which said file is to be distributed;

said origin node operable to distribute all of said plurality of subfiles to said recipient nodes, wherein a different subfile is distributed from said origin node to each of said recipient nodes; and

said recipient nodes operable to exchange their respective subfiles received from said origin node such that each recipient node obtains all of said plurality of subfiles, wherein at least one recipient node is operable to begin communicating a portion of its respective subfile that it is receiving from the origin node to at least one other recipient node before the at least one recipient node fully receives its respective subfile from the origin node.

24. The system of claim 23 wherein the origin node is operable to distribute the plurality of subfiles to said number of recipient nodes of said first group concurrently.

25. A method comprising:

distributing a plurality of subfiles that comprise a file from a first node to a first group comprising a plurality of recipient nodes, wherein at least one subfile distributed from the first node to each recipient node of said first group but no individual recipient node of said first group receives all of said plurality of subfiles from the first node; and

exchanging subfiles among said plurality of recipient nodes of said first group such that each recipient node of said first group obtains all of said plurality of subfiles, wherein at least one recipient node of said first group begins communicating a portion of its respective subfile that it is receiving from the first node to at least one other recipient node of said first group before the at least one recipient node fully receives its respective subfile.

26. The method of claim 25 further comprising:

partitioning said file into said plurality of subfiles.

27. The method of claim 25 wherein said distributing comprising:

distributing from the first node a different subfile to each of said recipient nodes of said first group.

28. The method of claim 25 wherein said distributing comprises:

distributing the plurality of subfiles to said plurality of recipient nodes of said first group concurrently.

29. The method of claim 25 wherein exchanging subfiles among said plurality of recipient nodes of said first group further comprises:

each of said plurality of recipient nodes establishing concurrent communication connections to every other recipient node of said first group.

30. The method of claim 25 further comprising:

said first group of recipient nodes communicating said file to a second group comprising a plurality of recipient nodes.

31. The method of claim 30 wherein each recipient node of said first group begins communicating the subfile that it is receiving from said first node to at least one node of the second group before fully receiving the subfile from the first node.

32. A method comprising:

distributing a plurality of descriptors of a file encoded with multiple description coding (MDC) from a first node to a first group comprising a plurality of recipient nodes, wherein at least one descriptor is distributed from the first node to each recipient node of said first group but not all of said plurality of descriptors are distributed from the first node to any of the recipient nodes of said first group; and

said plurality of recipient nodes of said first group exchanging their respective descriptors such that each recipient node of said first group obtains all of said plurality of descriptors, wherein at least one recipient node of said first group begins communicating a portion of its respective descriptor that it is receiving from the first node to at least one other recipient node of said first group before the at least one recipient node fully receives its respective descriptor from the first node.

33. The method of claim 32 wherein said distributing comprising:

distributing from the first node a different descriptor to each of said recipient nodes of said first group.

34. The method of claim 32 wherein said distributing comprises:

distributing the plurality of descriptors to said plurality of recipient nodes of said first group concurrently.

IX. EVIDENCE APPENDIX

No evidence pursuant to §§ 1.130, 1.131, or 1.132 or entered by or relied upon by the examiner is being submitted.

X. RELATED PROCEEDINGS APPENDIX

Appellant respectfully notes that the following copending applications are on appeal before the Board, which contain at least some issues that are similar to issues of the present application, which may be affected or have a bearing on the Board's decision in this appeal: 1) Application No. 10/345,716 (hereinafter "the '716 application"); and 2) Application No. 10/345,718 (hereinafter "the '718 application").

A notice of appeal to the Board was filed for the '716 application on September 11, 2006, and a notice of appeal to the Board was filed for the '718 application on September 11, 2006. As of the filing of this Appeal Brief, no decisions have been received in these related appeals, and thus no copies of such decisions in the related proceedings are provided.